

WHAT IS CLAIMED IS:

1. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a thermal bridge adapted to contact a surface portion of the keg and having a cavity filled with a cooling solution; and

a cooling device adapted to chill the thermal bridge, including the cooling solution in the cavity for extracting heat from and for cooling the alcoholic beverage contained in the keg when the keg is mounted in heat transfer relation with the thermal bridge.

2. A cooling system according to Claim 1 wherein the cooling solution is chilled to the extent it has a latent heat cooling capacity.

3. A system according to Claim 1 or 2 wherein said cooling solution is a mixture of water and glycol.

4. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a thermal bridge adapted to contact a surface portion of the keg and the thermal bridge having a cavity filled with a cooling solution comprising a mixture of water and glycol; and

a cooling device adapted to chill the thermal bridge, including the cooling solution in the cavity, so as to produce a latent heat cooling capacity in the thermal bridge for cooling the alcohol beverage contained in the keg when the keg is mounted in heat transfer relation with the thermal bridge.

5. The cooling system of Claim 4 wherein the cooling solution comprises 5% by volume glycol.

6. The cooling system of Claim 4 wherein the cooling solution further contains a corrosion inhibitor.

7. The cooling system of Claim 4 wherein the solution is cooled to form ice.

8. The cooling system of Claim 4 wherein the cooling device has a Peltier thermoelectric cooling unit that has a cool surface portion in heat transfer contact with the thermal bridge and that has a hot surface portion in heat transfer contact with a heat sink.

9. The cooling system of Claim 8 wherein the cooling device further includes a fan for directing air flow across the heat sink.

10. The cooling system of Claim 4 wherein the thermal bridge comprises a cooling plate adapted to contact a bottom surface portion of the keg.

11. The cooling system of Claim 4 wherein the cooling device further includes an

active heat sink adapted to remove heat from the thermal bridge and to dissipate heat transferred through the thermal bridge from the alcohol beverage in the keg.

12. A home beer dispensing apparatus having a cooling system for cooling a keg containing beer, the cooling system comprising:

a thermal bridge adapted to contact a surface portion of the keg and the thermal bridge having a reservoir filled with a cooling solution comprising a mixture of water and glycol; and,

a cooling device adapted to chill the thermal bridge, including the cooling solution in the reservoir, so as to produce a latent heat cooling capacity in the thermal bridge for cooling the beer contained in the keg when the keg is mounted in heat transfer relation with the thermal bridge.

13. The dispensing apparatus of Claim 12 wherein the cooling solution comprises 5% by volume glycol.

14. The dispensing apparatus of Claim 12 wherein the cooling solution further contains a corrosion inhibitor.

15. The dispensing apparatus of Claim 12 wherein the solution is cooled to form ice.

16. The dispensing apparatus of Claim 12 wherein the cooling device has a Peltier thermoelectric cooling unit that has a cool surface portion in heat transfer contact with the thermal bridge and that has a hot surface portion in heat transfer contact with a heat sink.

17. The dispensing apparatus of Claim 16 wherein the cooling device further includes a fan for directing air flow across the heat sink.

18. The dispensing apparatus of Claim 12 wherein the thermal bridge comprises a cooling plate adapted to contact a bottom surface portion of the keg.

19. The dispensing apparatus of Claim 12 wherein the cooling device further includes an active heat sink adapted to remove heat from the thermal bridge and to dissipate heat transferred through the thermal bridge from the beer in the keg.

20. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a thermal bridge adapted to contact a surface portion of the keg and the thermal bridge having a cavity filled with a cooling solution, the cavity has a first series of spaced apart heat exchange fins extending substantially along and interstitially into the cavity from at least one wall of the cavity; and,

a cooling device adapted to chill the thermal bridge and extract heat from the alcohol

beverage contained in the keg when the keg is mounted in heat transfer relation with the thermal bridge.

21. The cooling system of Claim 20 wherein the cooling system is a solution of glycol in water.

22. The cooling system of Claim 20 wherein the cavity has a second wall, opposite to the one wall, that supports a second series of spaced apart heat exchange fins that extend along and interstitially into the cavity in spaced apart relation with the first series of spaced apart heat exchange fins, and the cooling solution filling the space between the first and second series of heat exchange fins.

23. The cooling system of Claim 22 where the first and second series of heat exchange fins extend into the cavity in parallel interleaved relation.

24. The cooling system of Claim 22 wherein the cavity is formed of a top portion and a bottom portion that are secured together in sealed relation, the top portion comprising a cooling plate that is adapted to contact the keg in heat transfer relation and the first series of fins extending into the cavity from the top portion, and the bottom portion supporting the second series of fins to extend into the cavity.

25. The cooling system of Claim 22 wherein the cooling solution comprises 5% by volume glycol.

26. The cooling system of Claim 22 wherein the cooling solution is cooled to form ice.

27. The cooling system of Claim 22 wherein the cooling device comprises a Peltier thermoelectric cooling unit that has a cool surface portion in heat transfer contact with the thermal bridge and that has a hot surface portion in heat transfer contact with a heat sink.

28. The cooling system of Claim 27 wherein the cooling system further includes a fan for directing air flow across the heat sink.

29. A home beer dispensing apparatus having a cooling system for cooling a keg containing beer, the cooling system comprising:

a thermal bridge adapted to contact a surface portion of the keg and the thermal bridge having a cavity filled with a cooling solution, the cavity has a first series of spaced apart heat exchange fins extending substantially along and interstitially into the cavity from at least one wall of the cavity; and,

a cooling device adapted to chill the thermal bridge and extract heat from the beer contained in the keg when the keg is mounted in heat transfer relation with the thermal bridge.

30. The home beer dispensing apparatus of Claim 29 wherein the cavity has a second wall, opposite to the one wall, that supports a second series of spaced apart heat exchange fins that extend along and interstitially into the cavity in spaced apart relation with the first series of spaced apart heat exchange fins, and the cooling solution filling the space between the first and second series of heat exchange fins.

31. The home beer dispensing apparatus of Claim 30 wherein the first and second series of heat exchange fins extend into the cavity in parallel interleaved relation.

32. The home beer dispensing apparatus of Claim 30 wherein the cavity is formed of a top portion and a bottom portion that are secured together in sealed relation, the top portion comprising a cooling plate that is adapted to contact the keg in heat transfer relation and the first series of fins extending into the cavity from the top portion, and the bottom portion supporting the second series of fins to extend into the cavity.

33. The home beer dispensing apparatus of Claim 30 wherein the cooling solution comprises 5% by volume glycol.

34. The home beer dispensing apparatus of Claim 30 wherein the cooling solution is cooled to form ice.

35. The home beer dispensing apparatus of Claim 30 wherein the cooling device comprises a Peltier thermoelectric cooling unit that has a cool surface portion in heat transfer contact with the thermal bridge and that has a hot surface portion in heat transfer contact with a heat sink.

36. The home beer dispensing apparatus of Claim 35 wherein the cooling system further includes a fan for directing air flow across the heat sink.

37. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a heat sink having a plurality of spaced apart heat exchange fins extending along corresponding spaced apart non-vertical planes.

38. The cooling system of Claim 37 wherein the heat sink has at least one supporting wall from which the heat exchange fins extend to define at least two open sides, one of which is lateral and means for directing air flow towards one of the open sides along the heat exchange fins and out the other open side whereby the fins and at least one supporting wall direct the air flow along the fins and out the lateral open side of the heat sink.

39. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a heat sink having a plurality of spaced apart heat exchange fins extending along

corresponding spaced apart horizontal planes.

40. The cooling system of Claim 39 wherein the heat sink has at least one supporting wall from which the heat exchange fins extend to define at least two open sides, and means for directing air flow towards one of the open sides along the heat exchange fins and out the other open side whereby the horizontal extending fins and at least one supporting wall direct the air flow horizontally along the fins.

41. The cooling system of Claim 39 wherein the heat sink has a supporting wall from which the heat exchange fins extend to define two opposing lateral open sides and an open front, and means for directing air flow towards the open front of the heat sink whereby the horizontal extending fins and supporting wall direct the air flow horizontally along the fins and out the two lateral open sides of the heat sink.

42. The cooling system of Claim 41 wherein the means for directing air flow comprises a fan mounted directly to the open front of the heat sink.

43. The cooling system of Claim 42 further including a Peltier thermoelectric cooling unit mounted to an outside surface of the supporting wall of the heat sink and being adapted to be mounted in heat transfer relation with the keg for enhancing the extraction of heat from the beverage contained in the keg therethrough for dissipation from the heat sink.

44. The cooling system of Claim 43 further including a cooling plate in heat transfer relation with the Peltier thermoelectric cooling unit and a bottom surface portion of the keg.

45. A home beer dispensing apparatus having a cooling system for cooling a keg containing beer, the cooling system comprising:

a heat sink having a plurality of spaced apart heat exchange fins extending along corresponding spaced apart horizontal planes.

46. The home beer dispensing apparatus of Claim 45 wherein the heat sink has at least one supporting wall from which the heat exchange fins extend to define at least two open sides, and means for directing air flow towards one of the open sides along the heat exchange fins and out the other open side whereby the horizontal extending fins and at least one supporting wall direct the air flow horizontally along the fins.

47. The home beer dispensing apparatus of Claim 45 wherein the heat sink has a supporting wall from which the heat exchange fins extend to define two opposing lateral open sides and an open front, and means for directing air flow towards the open front of the heat sink whereby the horizontal extending fins and supporting wall direct the air flow horizontally along the fins and out the two lateral open sides of the heat sink.

48. The home beer dispensing apparatus of Claim 47 wherein the means for directing air flow comprises a fan mounted directly to the open front of the heat sink.

49. The home beer dispensing apparatus of Claim 47 wherein the cooling system further includes a Peltier thermoelectric cooling unit mounted to an outside surface of the supporting wall of the heat sink and being adapted to be mounted in heat transfer relation with the keg for enhancing the extraction of heat from the beer contained in the keg therethrough for dissipation from the heat sink.

50. The home beer dispensing apparatus of Claim 49 wherein the cooling system further includes a cooling plate in heat transfer relation with the Peltier thermoelectric cooling unit and a bottom surface portion of the keg.

51. The home beer dispensing apparatus of Claim 47 wherein the dispensing apparatus contains at least one grill through which ambient air is drawn into the apparatus across the open front of the heat sink and warmed air is directed by the heat exchange fins horizontally out of the apparatus through the at least one grill.

52. The cooling system of Claim 10 and 24 wherein a heater is mounted with the cooling plate and adapted to maintain the temperature of beverage in the keg adjacent the bottom portion of the keg above freezing temperature of the beverage.

53. The cooling system of Claim 52 wherein the heater comprises an electrical resistance heater mounted in the cooling plate.

54. The cooling system of Claim 53 further including a temperature sensor adapted to contact the keg adjacent the bottom portion of the keg for sensing temperature related to the temperature of the beverage in the keg, and a temperature controller responsive to the temperature sensed by the temperature sensor to energize the heater to transfer heat into the bottom portion of the keg and the beverage so as to maintain the temperature of the beverage above its freezing temperature.

55. The home beer dispensing apparatus of Claim 10, 18, 44 or 50 is a heater mounted with the cooling plate and adapted to maintain the temperature of beer in the keg adjacent the bottom portion of the keg above freezing temperature of the beer.

56. The apparatus of Claim 55 wherein the heater comprises an electrical resistance heater mounted in the cooling plate.

57. The apparatus of Claim 56 which further includes a temperature sensor adapted to contact the keg adjacent the bottom portion of the keg for sensing temperature related to the temperature of the beer in the keg, and a temperature controller responsive to the temperature sensed by the temperature sensor to energize the heater to transfer heat into

the bottom portion of the keg and the beer so as to maintain the temperature of the beer above its freezing temperature.

58. A cooling system for cooling a keg containing an alcohol beverage, the cooling system comprising:

a cooling plate adapted to receive a bottom portion of the keg in heat transfer relation therewith; and

a heater mounted with the cooling plate adapted to maintain the temperature of beverage in the keg adjacent the bottom portion of the keg above freezing temperature of the beverage.

59. The cooling system of Claim 58 wherein the heater comprises an electrical resistance heater mounted in the cooling plate.

60. The cooling system of Claim 59 further including a temperature sensor adapted to contact the keg adjacent the bottom portion of the keg for sensing temperature related to the temperature of the beverage in the keg, and a temperature controller responsive to the temperature sensed by the temperature sensor to energize the heater to transfer heat into the bottom portion of the keg and the beverage so as to maintain the temperature of the beverage above its freezing temperature.

61. The cooling system of Claim 59 further including a Peltier thermoelectric cooling unit mounted in heat transfer relation with the cooling plate for enhancing the extraction of heat from the beer contained in the keg.

62. A home beer dispensing apparatus having a cooling system for cooling a keg containing beer, the cooling system comprising:

a cooling plate adapted to receive a bottom portion of the keg in heat transfer relation therewith; and

a heater mounted with the cooling plate adapted to maintain the temperature of beer in the keg adjacent the bottom portion of the keg above freezing temperature of the beer.

63. The apparatus of Claim 62 wherein the heater comprises an electrical resistance heater mounted in the cooling plate.

64. The apparatus of Claim 63 further including a temperature sensor adapted to contact the keg adjacent the bottom portion of the keg for sensing temperature related to the temperature of the beer in the keg, and a temperature controller responsive to the temperature sensed by the temperature sensor to energize the heater to transfer heat into the bottom portion of the keg and the beer so as to maintain the temperature of the beer above its freezing temperature.

65. The apparatus of Claim 63 further including a Peltier thermoelectric cooling unit mounted in heat transfer relation with the cooling plate for enhancing the extraction of heat from the beer contained in the keg.

66. A keg suitable for containing an alcohol beverage, the keg comprising two keg half shells each identically formed to have an end wall portion and side walls extending from the end wall portion that terminates in a continuous side wall edge portion, and the two keg half shells having their respective side wall edge portions placed in abutting relation with one another and joined together to form the keg.

67. The keg of Claim 66 wherein the end wall portion of each half shell is formed with a raised annular collar and a face plate extending across the collar to normally close the collar.

68. The keg of Claim 67 wherein the face plate of one of the two keg half shells is adapted to engage a cooling plate in heat transfer relation therewith and the other face plate of the two keg half shells is at least partially removed to form an aperture for receiving a valve and spear for filling into and dispensing from the keg the beverage.

69. The keg of Claim 68 wherein the end wall portion of each keg shell has an annular rim extending about the periphery of the end wall portion and adjacent to the cylindrical wall.

70. The keg of Claim 69 wherein the rim is adapted to support a chime for orientating the keg in a home beer dispensing apparatus.

71. The keg of Claim 69 wherein the end wall portions of the kegs each have a concave curvature relative to the side walls and interior of the keg.

72. The keg of Claim 66 wherein each of the keg half shells are formed by deep drawing of a material selected from the group consisting of steel, stainless steel, and aluminum.

73. The keg of Claim 66 wherein the side wall edge portions are joined by a weld.

74. The keg of Claim 66 wherein the side walls comprise a continuous cylindrical wall and the side wall edge portions of each cylindrical side wall abut each other along a common plane that passes through a center of the keg.

75. The keg of Claim 74 wherein the side wall edge portions are joined by a weld.

76. The keg of Claim 74 wherein the end wall portion of each half shell is formed with a raised annular collar and a face plate extending across the collar to normally close the collar.

77. The keg of Claim 76 wherein the face plate of one of the two keg half shells is

adapted to engage a cooling plate in heat transfer relation therewith and the other face plate of the two keg half shells is at least partially removed to form an aperture for receiving a valve and spear for filling into and dispensing from the keg the beverage housed therein.

78. The keg of Claim 76 wherein the end wall portion of each keg shell has an annular rim extending about the periphery of the end wall portion and adjacent to the cylindrical wall.

79. The keg of Claim 78 wherein the annular rim is adapted to support a chime for orientating the keg in a home beer dispensing apparatus.

80. The keg of Claim 74 wherein the end wall portions of the kegs each have a concave curvature relative to the cylindrical side wall and interior of the keg.

81. The keg of Claim 74 wherein each of the keg half shells are formed by deep drawing of a material selected from the group consisting of steel, stainless steel, and aluminum.

82. A keg suitable for containing a beer, the keg comprising two keg half shells each identically formed by deep drawing of a material selected from the group consisting of steel, stainless steel, plated steel and aluminum to have an end wall portion and a cylindrical side wall that extends substantially normal from the end wall portion;

each end wall portion being formed with a raised annular collar and face plate extending across the collar to normally close the collar, the face plate of one of the two keg half shells being adapted to engage a cooling plate in heat transfer relation therewith and the other face plate of the two keg half shells is at least partially removed to form an aperture for receiving a valve and spear for filling into and dispensing from the keg the beer housed therein; and,

the cylindrical side wall terminating in a continuous side wall edge portion, the two keg half shells having their respective side wall edge portions placed in abutting relation with one another along a common plane that passes through a center of the keg, and the keg half shells being joined together along the abutting side wall edge portions to form the keg.

83. The keg of Claim 82 wherein the side wall edge portions are joined by a weld.

84. The keg of Claim 82 wherein the end wall portions of the kegs each have a concave curvature relative to the cylindrical side wall and interior of the keg.